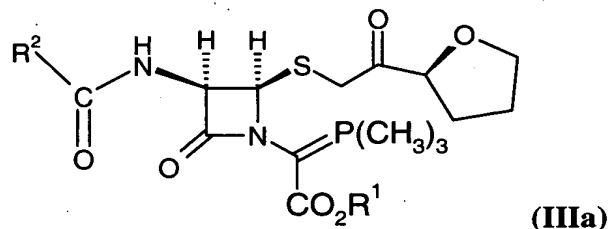


- a) heating cyclizing a trimethylphosphinic compound of formula (IIIa)



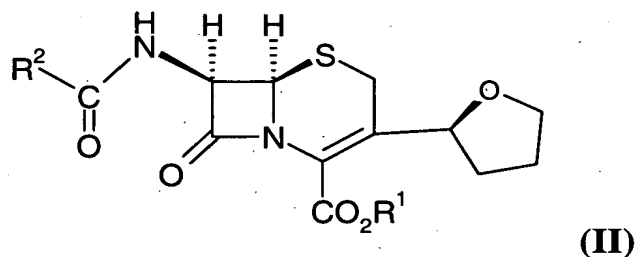
wherein

R<sup>1</sup> is *para*-nitrobenzyl or allyl;

R<sup>2</sup> is selected from the group consisting of C<sub>1-6</sub>alkyl, C<sub>6-10</sub>aryl, C<sub>6-10</sub>arylC<sub>1-6</sub>alkyl and dithianyl;

in a solvent;

to form a compound of formula (II)



wherein

R<sup>1</sup> is *para*-nitrobenzyl or allyl;

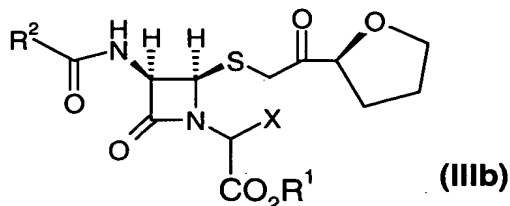
R<sup>2</sup> is selected from the group consisting of C<sub>1-6</sub>alkyl, C<sub>6-10</sub>aryl, C<sub>6-10</sub>arylC<sub>1-6</sub>alkyl and dithianyl; and

- b) reacting said compound of formula (II) with ~~an~~ a Lewis acid of structure PX<sub>5</sub> wherein X is a halo group.

2. (ORIGINAL) A process according to claim 1, wherein said solvent is selected from the group consisting of toluene, xylene, tetrahydrofuran, methylene chloride and acetonitrile.

3. (ORIGINAL) A process according to claim 1, wherein said acid is phosphorus pentachloride or phosphorus pentabromide; and wherein X is chloro or bromo.

4. (ORIGINAL) A process according to claim 1, further comprising the step of preparing said compound of formula (IIIa), by reacting a compound of formula (IIIb)



wherein said R<sup>1</sup> is *para*-nitrobenzyl or allyl,

said  $R^2$  is selected from the group consisting of  $C_{1-6}$ alkyl,  $C_{6-10}$ aryl,  $C_{6-10}$ aryl $C_{1-6}$ alkyl and dithianyl; and

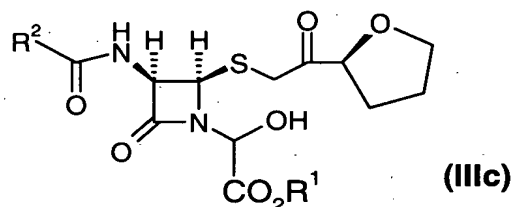
said X is halo;

with trimethylphosphine, in a solvent and in the presence of a base.

5. (ORIGINAL) A process according to claim 4, wherein said solvent is tetrahydrofuran, acetonitrile or methylene chloride.

6. (ORIGINAL) A process according to claim 4, wherein said base is selected from the group consisting of imidazole, 2,6-lutidine, pyridine, N-methylmorpholine and sodium bicarbonate.

7. (ORIGINAL) A process according to claim 4, further comprising the step of preparing said compound of formula (IIIb), by reacting a compound of formula (IIIc)

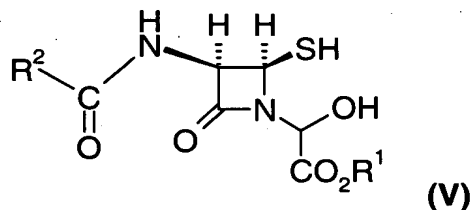


wherein said  $R^1$  is *para*-nitrobenzyl or allyl and said  $R^2$  is selected from the group consisting of  $C_{1-6}$ alkyl,  $C_{6-10}$ aryl,  $C_{6-10}$ aryl $C_{1-6}$ alkyl and dithianyl; with a halogenating agent, in a solvent and in the presence of a base.

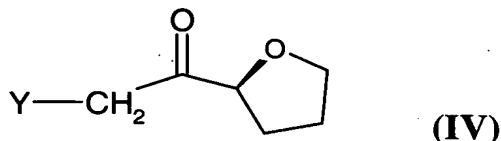
8. (ORIGINAL) A process according to claim 7, wherein said halogenating agent is thionyl chloride, thionyl bromide, phosphorus trichloride or phosphorus tribromide; and said halo is chloro or bromo.

9. (ORIGINAL) A process according to claim 7, wherein said base is selected from the group consisting of pyridine, 2,6-lutidine, N-methylmorpholine and imidazole.

10. (ORIGINAL) A process according to claim 7, further comprising the step of preparing said compound of formula (IIIc), by reacting a compound of formula (V)



wherein said  $R^1$  is *para*-nitrobenzyl or allyl and said  $R^2$  is selected from the group consisting of  $C_{1-6}$ alkyl,  $C_{6-10}$ aryl,  $C_{6-10}$ aryl $C_{1-6}$ alkyl and dithianyl; with a compound of formula (IV)

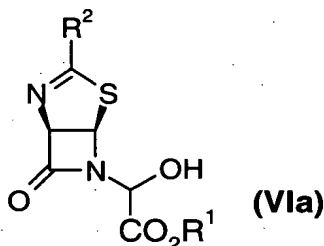


wherein Y is a leaving group selected from the group consisting of bromo, chloro, fluoro, iodo and tosylate; in a solvent.

11. (ORIGINAL) A process according to claim 10, wherein said Y is bromo or chloro.

12. (ORIGINAL) A process according to claim 10 wherein said solvent is alcohol selected from the group consisting of methanol, ethanol and propanol; methylene chloride; acetone; dimethylformamide or mixtures thereof.

13. (ORIGINAL) A process according to claim 10, further comprising the step of preparing said compound of formula (V) by reacting a compound of formula (VIa)



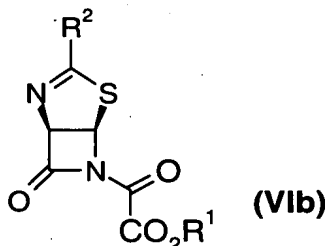
wherein R<sup>1</sup> is *para*-nitrobenzyl or allyl and wherein R<sup>2</sup> is selected from the group consisting of C<sub>1-6</sub>alkyl, C<sub>6-10</sub>aryl, C<sub>6-10</sub>arylC<sub>1-6</sub>alkyl and dithianyl; with an acid in a solvent.

14. (ORIGINAL) A process according to claim 13 wherein said acid is *para*-toluene sulfonic acid or methane sulfonic acid.

15. (ORIGINAL) A process according to claim 13 wherein said solvent is methylene chloride, tetrahydrofuran, acetone or mixtures thereof.

16. (ORIGINAL) A process according to claim 13 further comprising the step of preparing said compound of formula (VIa) by:

reacting a compound of formula (VIb)



wherein

R<sup>1</sup> is *para*-nitrobenzyl or allyl;

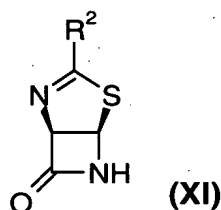
R<sup>2</sup> is selected from the group consisting of C<sub>1-6</sub>alkyl, C<sub>6-10</sub>aryl, C<sub>6-10</sub>arylC<sub>1-6</sub>alkyl and dithianyl;

with a reducing agent selected from the group consisting of sodium borohydride, sodium cyanoborohydride, borane and sodium triacetoxy borohydride; in a solvent.

17. (ORIGINAL) A process according to claim 16 wherein said reducing agent is sodium triacetoxy borohydride.

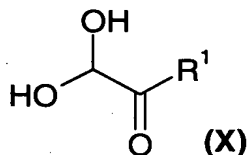
18. (ORIGINAL) A process according to claim 16 wherein said solvent is acetic acid, methylene chloride, tetrahydrofuran, isopropanol or mixtures thereof.

19. (ORIGINAL) A process according to claim 13 further comprising the step of preparing said compound of formula (VIa) by reacting a compound of formula (XI)



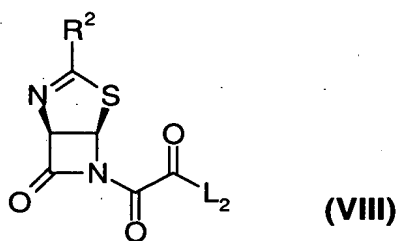
wherein R<sup>2</sup> is selected from the group consisting of C<sub>1-6</sub>alkyl, C<sub>6-10</sub>aryl, C<sub>6-10</sub>arylC<sub>1-6</sub>alkyl and dithianyl;

with a compound of formula (X)



wherein R<sup>1</sup> is *para*-nitrobenzyl or allyl; in a solvent; in the presence of a base.

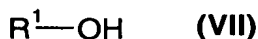
20. (ORIGINAL) A process according to claim 16 further comprising the step of preparing said compound of formula (VIb) comprising reacting a compound of formula (VIII)



wherein

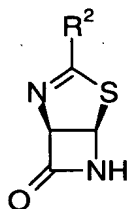
R<sup>2</sup> is selected from the group consisting of C<sub>1-6</sub>alkyl, C<sub>6-10</sub>aryl, C<sub>6-10</sub>arylC<sub>1-6</sub>alkyl and dithianyl;

L<sub>2</sub> is a leaving group selected from the group consisting of halo, azide and C<sub>1-6</sub>alkoxy;  
with a compound of formula (VII)



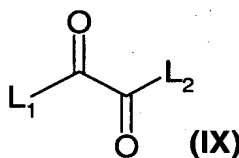
wherein R<sup>1</sup> is *para*-nitrobenzyl or allyl, in a solvent, in the presence of a base;

further comprising the step of preparing said compound of formula (VIII) by reacting a compound of formula (XI)



(XI)

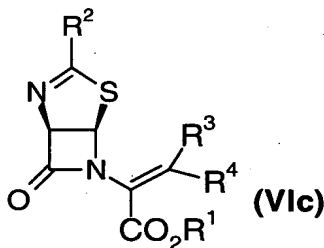
wherein R<sup>2</sup> is selected from the group consisting of C<sub>1-6</sub>alkyl, C<sub>6-10</sub>aryl, C<sub>6-10</sub>aryl C<sub>1-6</sub>alkyl and dithianyl; with a compound of formula (IX)



(IX)

wherein each of said L<sub>1</sub> and L<sub>2</sub> is a leaving group selected from the group consisting of halo, azide and C<sub>1-6</sub>alkoxy; in a solvent, optionally in the presence of a base.

21. (ORIGINAL) A process according to claim 16 further comprising the step of preparing said compound of formula (VIb) comprising reacting a compound of formula (VIc)



(VIc)

wherein

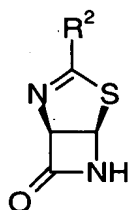
R<sup>1</sup> is *para*-nitrobenzyl or allyl;

R<sup>2</sup> is selected from the group consisting of C<sub>1-6</sub>alkyl, C<sub>6-10</sub>aryl, C<sub>6-10</sub>arylC<sub>1-6</sub>alkyl and dithianyl;

R<sup>3</sup> is hydrogen or C<sub>1-6</sub>alkyl; and

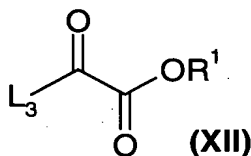
R<sup>4</sup> is hydrogen or C<sub>1-6</sub>alkyl; with ozone, in a solvent.

22. (ORIGINAL) A process according to claim 16 further comprising the step of preparing said compound of formula (VIb) comprising reacting a compound of formula (XI)



(XI)

wherein  $R^2$  is selected from the group consisting of  $C_{1-6}$ alkyl,  $C_{6-10}$ aryl,  $C_{6-10}$ aryl  $C_{1-6}$ alkyl, and dithianyl; with a compound of formula (XII)



(XII)

wherein

each of said  $L_3$  is halo;

$R^1$  is *para*-nitrobenzyl or allyl;

in a solvent, in the presence of a base.

23. (ORIGINAL) A process according to claim 20, wherein each of  $L_1$  and  $L_2$ , wherever each of them occurs, is halo selected from the group consisting of bromo or chloro.

24. (ORIGINAL) A process according to claim 21 wherein  $R^3$  is methyl and  $R^4$  is methyl.

25. (ORIGINAL) A process according to any of claims 7, 19-20 or 22 wherein said solvent, wherever it occurs, is methylene chloride, tetrahydrofuran or mixtures thereof.

26. (ORIGINAL) A process according to claim 21 wherein said solvent is methylene chloride, tetrahydrofuran, isopropanol or mixtures thereof.

27. (ORIGINAL) A process according to any of claims 19-21 wherein said base, wherever it occurs, is selected from the group consisting of diisopropylamine, triethylamine, pyridine and 2,6-lutidine.

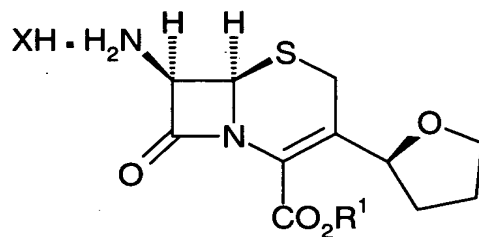
28. (ORIGINAL) A process according to any of claims 1-27, wherein each of said  $R^1$ , wherever it occurs, is *para*-nitrobenzyl.

29. (ORIGINAL) A process according to any of claims 1-27, wherein each of said  $R^1$ , wherever it occurs, is allyl.

30. (ORIGINAL) A process according to any of claims 1-27, wherein each of said  $R^2$ , wherever it occurs, is  $C_{6-10}$ aryl $C_{1-6}$ alkyl.

31. (ORIGINAL) A process according to any of claims 1-27, wherein each of said  $R^2$ , wherever it occurs, is benzyl.

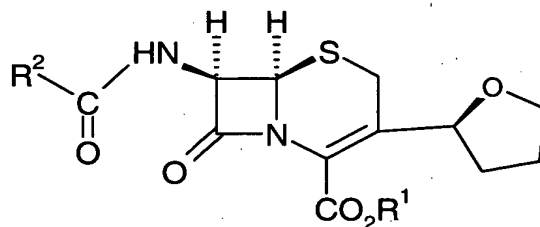
32. (ORIGINAL) A compound of formula (I)



(I)

wherein R<sup>1</sup> is *para*-nitrobenzyl or allyl; and X is halo.

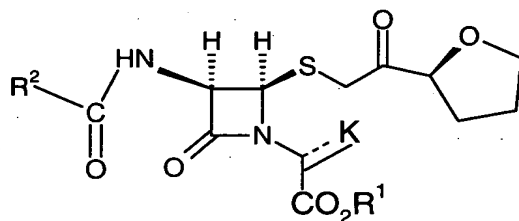
33. (ORIGINAL) A compound of formula (II)



(II)

wherein R<sup>1</sup> is *para*-nitrobenzyl or allyl; and R<sup>2</sup> is (C<sub>6</sub>-C<sub>10</sub>)aryl(C<sub>1-6</sub>)alkyl.

34. (ORIGINAL) A compound of formula (III)



(III)

wherein R<sup>1</sup> is *para*-nitrobenzyl or allyl;

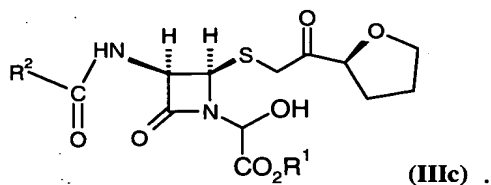
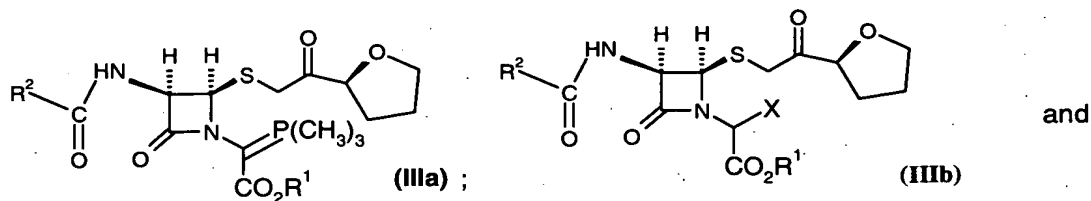
R<sup>2</sup> is (C<sub>6</sub>-C<sub>10</sub>)aryl(C<sub>1-6</sub>)alkyl;

K is hydroxy, halo or -P-(CH<sub>3</sub>)<sub>3</sub>;

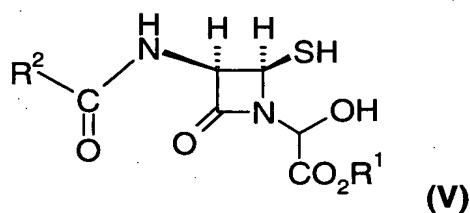
wherein the C-K bond is a single bond when K is hydroxy or halo; and a double bond when

K is -P-(CH<sub>3</sub>)<sub>3</sub>; and

wherein said compound of formula (III) is selected from the group consisting of compound of formulae (IIIa), (IIIb) and (IIIc):

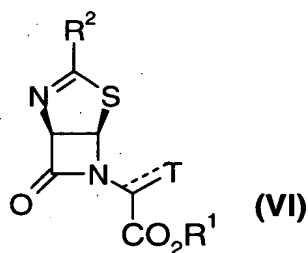


35. (ORIGINAL) A compound of formula (V)



wherein  $\text{R}^1$  is *para*-nitrobenzyl or allyl; and  $\text{R}^2$  is  $(\text{C}_6\text{-C}_{10})\text{aryl}(\text{C}_{1-6})\text{alkyl}$ .

36. (ORIGINAL) A compound of formula (VI)



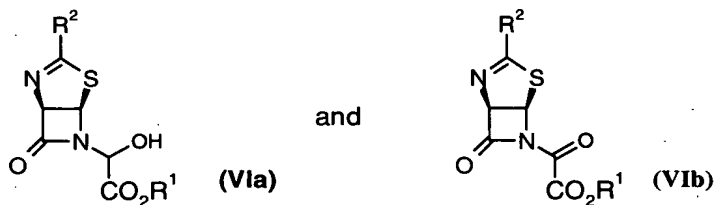
wherein  $\text{R}^1$  is *para*-nitrobenzyl or allyl;

$\text{R}^2$  is  $(\text{C}_6\text{-C}_{10})\text{aryl}(\text{C}_{1-6})\text{alkyl}$ ;

T is hydroxy or  $>\text{O}$ ;

wherein the C-T bond is a single bond when T is hydroxy; and a double bond when T is  $>\text{O}$  ;  
and

wherein said compound of formula (VI) is selected from the group consisting of compound of formulae (VIa) and (VIb):



37. (CANCELLED)



